

duce from one set of rolls, girders which vary in the thickness of the web and in the thickness and width of the flanges; the intention being to avoid the expense of cutting fresh rolls to suit variations in the dimensions of rolled beams. Two stands of rolls are used, one placed directly in front of the other so that the girder travels through both stands of rolls at every pass, as in a continuous mill. Each housing also carries a pair of vertical rolls between the necks of the horizontal rolls, the axes of all four rolls in housings being situated in one vertical plant. In the first stand (Fig. 3) the

The series of "broad flange beams" has a considerable range of sizes, extending from 7" to 30" in height, and as regards flange width, all the sections up to 12" high are "square," that is the flange width is equal to the height. The sections over 12" high have a uniform flange width of 12".

The practical advantages of broad flange beams have been rapidly recognized by engineers and architects of eminence in all parts of the world. The smaller sections,

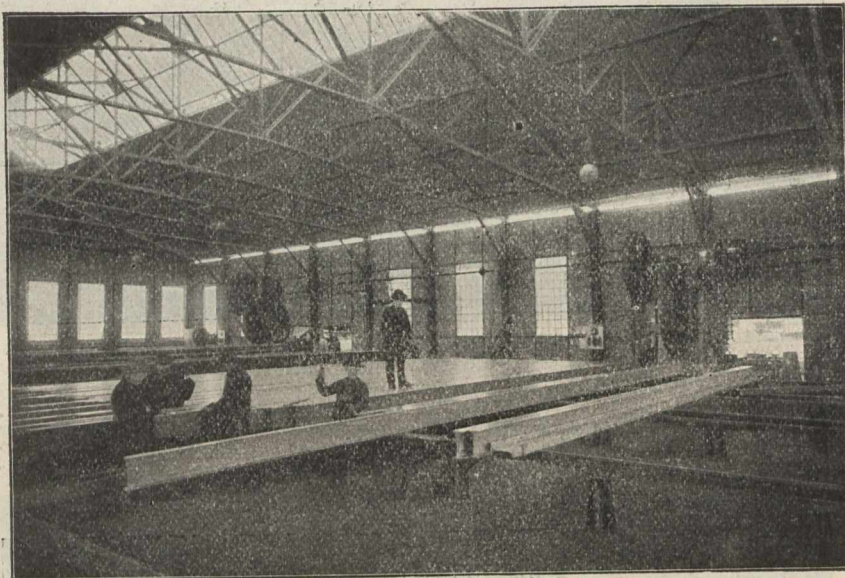


Fig. 6.—In Finishing Shop.

web of the girder is pressed between the horizontal rolls A, F, which determine its thickness; and the flanges between the ends of the rolls, A, B, and the faces of the vertical rolls, C, D, which determine their thickness; but leave them free to spread to any width: this width being determined by the rolls E, F, in the second stand, which do not touch the web, but act only on the edges of the flanges, which are held in position, and are prevented from thickening or turning over by the rolls, G, H. Thus the only dimension which is invariable, is the distance J. The width of flange, its thick-

on account of their extremely logical design, are an improvement on any form of stanchion obtainable. Due to the process of rolling referred to, they possess an immense carrying power in proportion to weight.

One very acceptable feature of these sections which commends them to designers of structural steelwork, is the large area of flange which is available for drilling to make bolted or other connections.

The larger sections are used for practically all purposes for which compound girders have hitherto been employed.

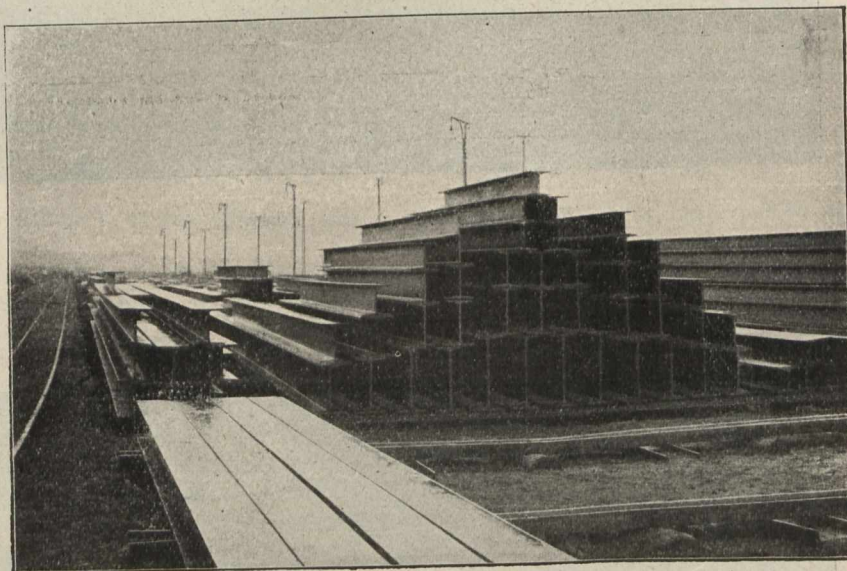


Fig. 7.—Beams in Stock Yard.

ness, and the thickness of the web are all variable at will, within considerable limits.

This mill can turn out girders with flanges wider and thinner than any which it is practicable to make in rolls of the usual construction.

The arrangement of the guides, the methods of driving the vertical rolls, and for securing simultaneous adjustment and working of all the rolls in unison, are exceedingly ingenious and effective, and account for the remarkable evenness of section and definition in form of the broad flanged beams made on the "Grey" mill.

In bridge work they have proved particularly advantageous, effecting considerable saving in weight, and, of course, dispensing with all the riveting which is necessary in the construction of compound girders.

It may be added, as a tribute to the sagacity and enterprise of Canadian Engineers, that they have been among the first to recognize the advantages of broad flange beams for use in practically all forms of constructional steelwork, and already large orders have been placed by Canadian buyers through Watson, Jack & Company, of Montreal, who are the Canadian sales agents.